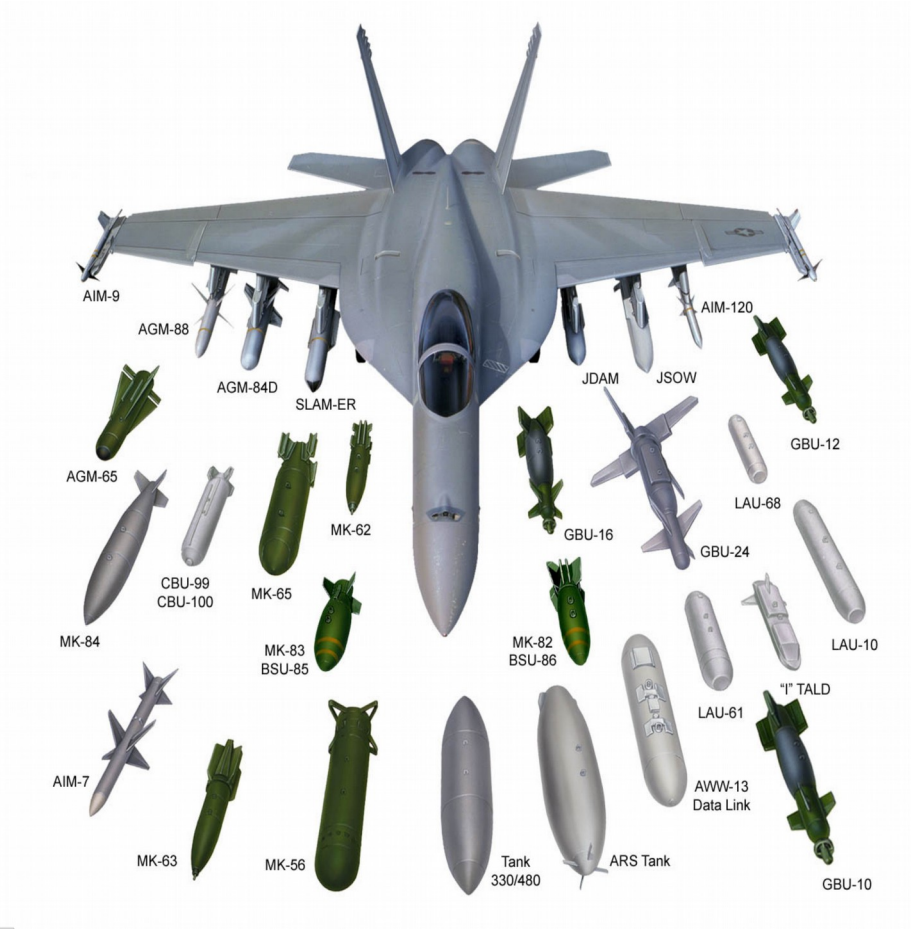
F/A-18 & EA-18G Program

Capable, Affordable & Interoperable…Today & Tomorrow



CAPT Mark Darrah

F/A-18 Hornet & EA-18G Program Manager

BOEING imagination at work NAVSUP Naval Inventory Control Point NAVAIR

Presentation Outline

- F/A-18 & EA-18G Organizational Overview
- F/A-18 & EA-18G Sustainment Strategy
- FIRST (F/A-18 Integrated Readiness Support Teaming)
- Other F-18 PBL Supported Systems
- PBL Challenges
- Summary: Keys to PBL Success

CVW Tactical Aviation Evolution

1985 1995 2005 2015 2020

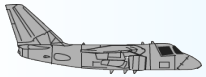
Mission Centric Operations

F-14A
- Outer Air Battle
- Fighter Sweep

A-6 / KA-6
- Strike
- Tanking

A-7
- Light Attack

F/A-18A
- Light Attack



S-3B
- ASUW

EA-6B
- SEAD

E-2C
- Blue Water AEW

Multi-Mission Operations

F-14D
- Precision Strike
- Air Superiority
- RECCE
- FAC(A)

F/A-18A/C

S-3B
- ASUW
- Tanking

EA-6B
- AEA/SEAD

E-2C
- Littoral Ops (Limited)

Technologies :
Multi-role, GPS, Night Attack……

Network Centric Operations

F/A-18E/F

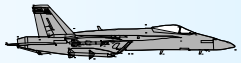
F/A-18C
- Time Critical Strike
- Precision Strike (Fixed and Moving)
- Air Superiority
- CSAR
- RECCE
- FAC(A)
- Battlefield Persistence
- Tanking

EA-6B
- AEA/SEAD

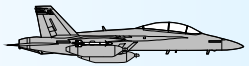
E-2C
- Littoral Ops
- Digital Collaborative Targeting

Technologies :
AESA, Link-16, DCS, Geo-Registration

Future Operations



F/A-18E/F



EA-18G

F-35B/C

E-2C

- NUCAS

Technologies :
WNN, WPNS DATA LINKS, SATCOM, BFT, Combat ID……

F/A-18 & EA-18G Program Overview

F/A-18 & EA-18G Worldwide Inventory

(as of 31 December 08)

USN/USMC Inventory

- 129 A/Bs
- 512 C/Ds
- 367 E/Fs (Current)
  - Inventory Objective
    - 506 E/Fs
- 9 EA-18Gs
  - Inventory Objective
    - 88 EA-18Gs

FMS (7 Countries)

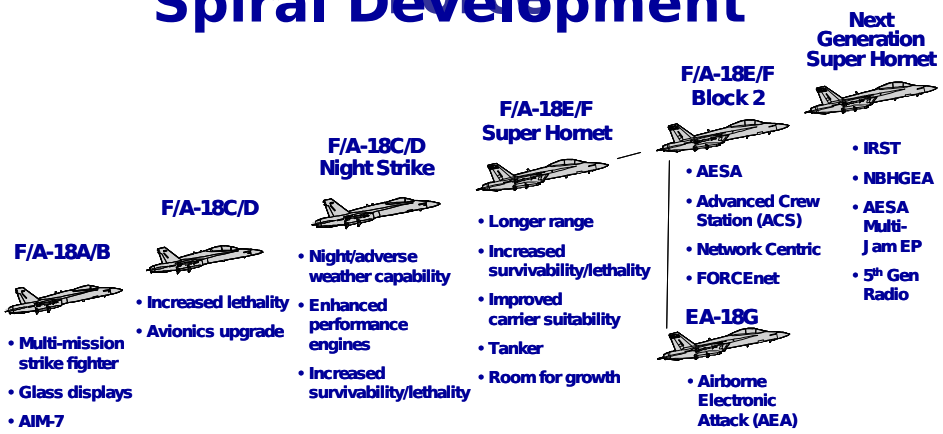
- 409 A/B/C/Ds
- 24 Australian F/A-18Fs

F/A-18 & EA-18G Portfolio

- F/A-18 E/F (ACAT IC)
- EA-18G (ACAT ID)
- ATFLIR (ACAT II)
- ALR-67(V)3 (ACAT II)
- IRST (ACAT III)
- DTP/MSU (ACAT III)
- AESA (ACAT 1C) / APG-73
- SHARP / ATARS
- F/A-18A/A+, B, C, D
- F404/F414
- Software (C++)
- ACS
- ANAV
- PIDS
- SLMP/SLAP/SLEP/CBR+
- FIRST
- Sensor Integration
- AIM-9X, AMRAAM (PMA-259)
- AMC&D, ARC-210/DCS (PMA-209)
- JHMCS (PMA-202)
- ICAP III, ALQ-99, LBT (PMA-234)
- IDECM (PMA-272)
- MIDS, MIDS-JTRS (JPEO JTRS10)
- AARGM (PMA-242)
- Trainers (PMA-205)
- JDAM, JSOW (PMA-201)
- JMPS (PMA-281)
- LITENING (PMA-257 & PMA-234)
- SE (PMA-260)
- MODE 5 IFF (PMA-213)
- SLAM-ER (PMA-201)
- DREM (PMA-272)
- ALQ-228 (IT POD)

The F/A-18 Inventory is Naval Carrier Strike Force

Spiral Development



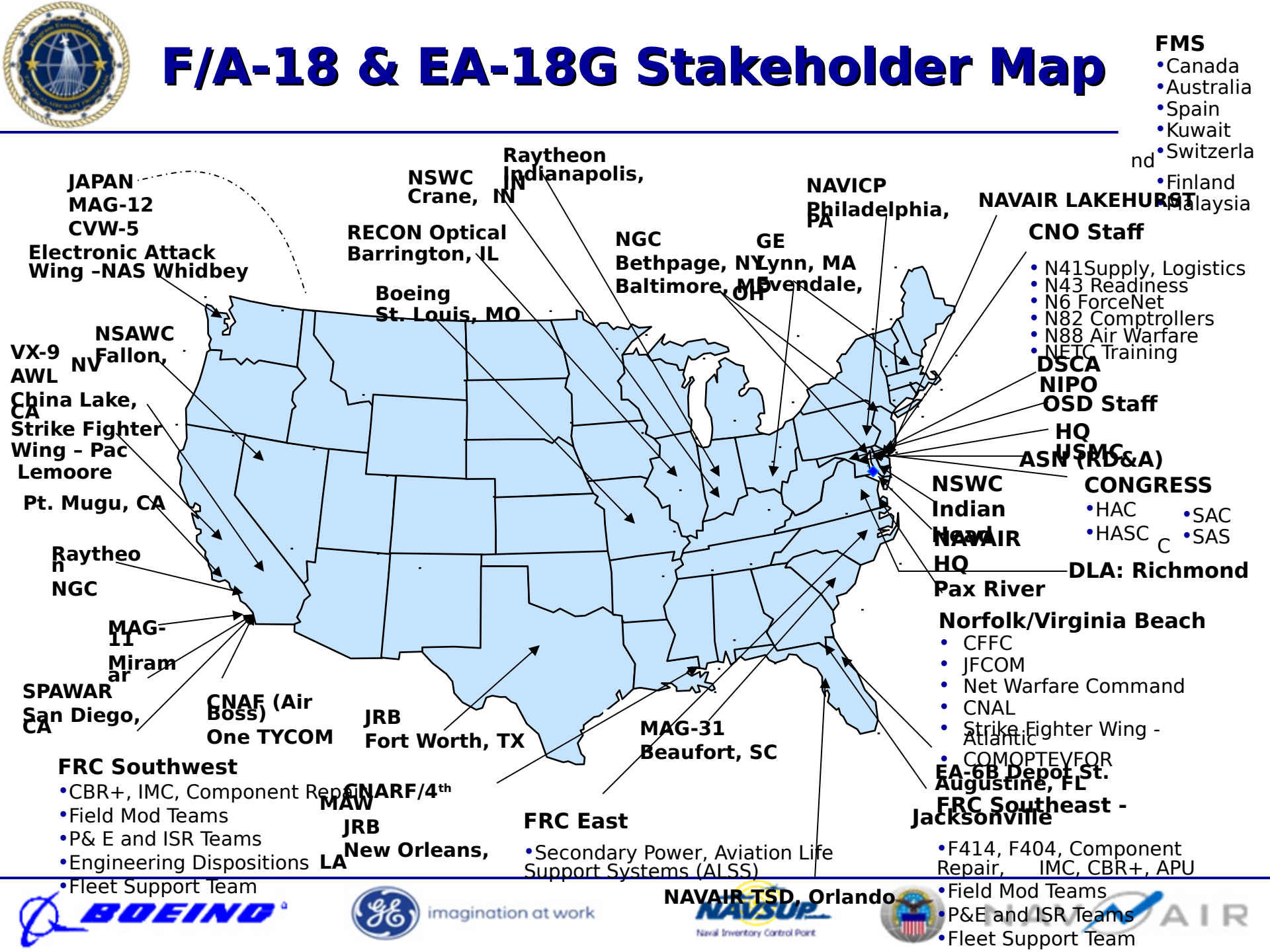
FY09 President's Budget ($B)

	2007	2008	2009
APN1	3.47	3.38	3.56
APN5	0.51	0.43	0.45
RDT&E	0.40	0.35	0.22
FMS	0.41	2.25	0.83
TOTAL	4.79	6.41	5.06

Multiple ACAT I, II, & III Programs

EA-18G	SYSTEMS DEVELOPMENT	FLEET SUPPORT		FMS
•ALQ-218 Receiver •Communication Countermeasures Set •Full ECMO Controls & Display Implementation •5 Station ALQ-99 Tactical Jamming Pods •Multi-Mission Advanced Tactical Terminal •Electronic Attack Unit •MATT antenna •CCS antenna •INCANS •Antenna Interface Unit •LBI & SBI Antennas •FWD and AFT preselectors •LB Towle Bar Antennas •TFQI •AEA JMPS •Wingtip Pods •AEA equipment pallet	•MIDS (463) •MAGR 2K •JHMCS (3063) •Night JHMCS •AMC&D / HOL •ACS •TAMMAC/TAWS •SDCR •Displays •SCS •N-PFPS •JMPS •FCNS •CAS-1 •CAS-II •ATFLIR (410) •AESA (415) •ALR-67(V)3 Integration •ALE-50 Integration •ALQ-214 Integration •ALE-55 Integration •SHARP (21) •WTT TGT PROJ RPLC •AIM-9X Integration •BRU-55 Integration •HARM CLC Integration •I-TALD •JASSM Integration •JTCTS •ANAV •AIM-120 •AARGM Integration •IRST •ICT •Sensor Integration •USSR •SSR	•F404-GE-400/402 Integration •F414-GE-400 Integration •Secondary/Electrical Power Integration •Fuel Systems Integration •A-D Correction of Discrepancies •A-D Center Barrel Replacement Plus •A-D Service Life Management Program (SLMP) •A-D Service Life Assessment Program (SLAP) •ECP-560//ECP-583R2/R4 A+ Upgrades •FCC 10.7/Envelope Expansion •NACES (544 kits) •Common Configuration (PSE) •ECP-6038 •Airframe Contract •Flight Test •Support Equipment •Depot Maintenance •Logistics Support •Engineering Support •GFE Procurement •E/F Correction of Deficiencies •Automated Maintenance Environment •DCS •MIDS Integration •EGI •PIDS (552) •ARC-210 Integration •AN/APX-11Integration •1APG-65 •APG-73 •AARGM	•FIRST •GILS •RT-1832/APX •MAGR •TFLIR (443) •NavFLIR (232) •LDT/SCAM (253) •ALR-67(V)2 Integ. •ALQ-165 Integ. •ALE-47 Integ. •ALE-39 Integ. •Expendables •EIBU (428) •RFTF (428) •EW RX & TX Ant •ATARS (18) •13C WTT •15C Diff Training •17C Diff Training •17C PTT MicroS •AIM-120 Integ. •GBU-24 D/B Integ. •GBU-24 E/B Integ. •AGM-88 Integ. •HARM CLC Integ. •JDAM Integ. •JSOW Integ. •LJTR II •SLAM-ER •SMUG/SMS •LITENING pods (43) •L-Band Data link (220) •Rockets, Mines •HARPOON	AUSTRALIA: 55 F/A-18A/16 F/A-18B A/C LOT 7 THRU 10. ▪ EGI & ARC-210 ▪ APG-73 RADAR & EIBU ▪ CIT, CSC, 6TH MUX, XN-8+ MCS ▪ AN/ARC-200 HF RADIO ▪ Unique Mission Planning System ▪ KY-100 ▪ ALQ-126B JAMMER ▪ ALR-67B(V)2 RWR CANADA: 138 LOT 5 THRU 10 F/A-18A/B A/C ▪ ECP-583 Avionics Upgrade ▪ EGI & Canadian/RAAF Unique Displays ▪ DATALINK, RWR, Jammers, CMDS, and JHMCS ▪ Expanded Precision Guided Munitions Capability ▪ OFPs, 21X Development FINLAND: 56 F/A-18C A/C LOT 18 THRU 21, 7 F/A-18D A/C, LOT 17 & 18 • AN/ALQ-165 ASPJ ▪ APG-73 RADAR Target Generator ▪ Finnish Developed DATALINK (DLEC) KUWAIT: 32 F/A-18C/8 F/A-18D A/C, LOT 14 & 15 ▪ Rhode & Schwarz SECOS 610 Data Link ▪ AN/APX-111 Combined Interrogator/Transponder (CIT) ▪ ARN-514 VOR/ILS ▪ AN/ALQ-162(V)1 Jammer MALAYSIA: 8 F/A-18D A/C, LOT 19 ▪ Night Attack Capability ▪ SECOS 610 Fighter To Fighter Datalink ▪ AMRAAM ▪ GPS/PPS Capable in the System Configuration Set SPAIN: 72 F/A-18A/B A/C LOTS 8 THRU 12 ▪ ALE-47 System Buys (76 systems) ▪ SAMRACK EWE & APG-65 TPS ▪ AYK-14 VPM Card Procurement ▪ AWM-103 & CRALTS ▪ Programmed Major Maintenance PMM (similar to USN PMI-1)

F/A-18 & EA-18G Stakeholder Map



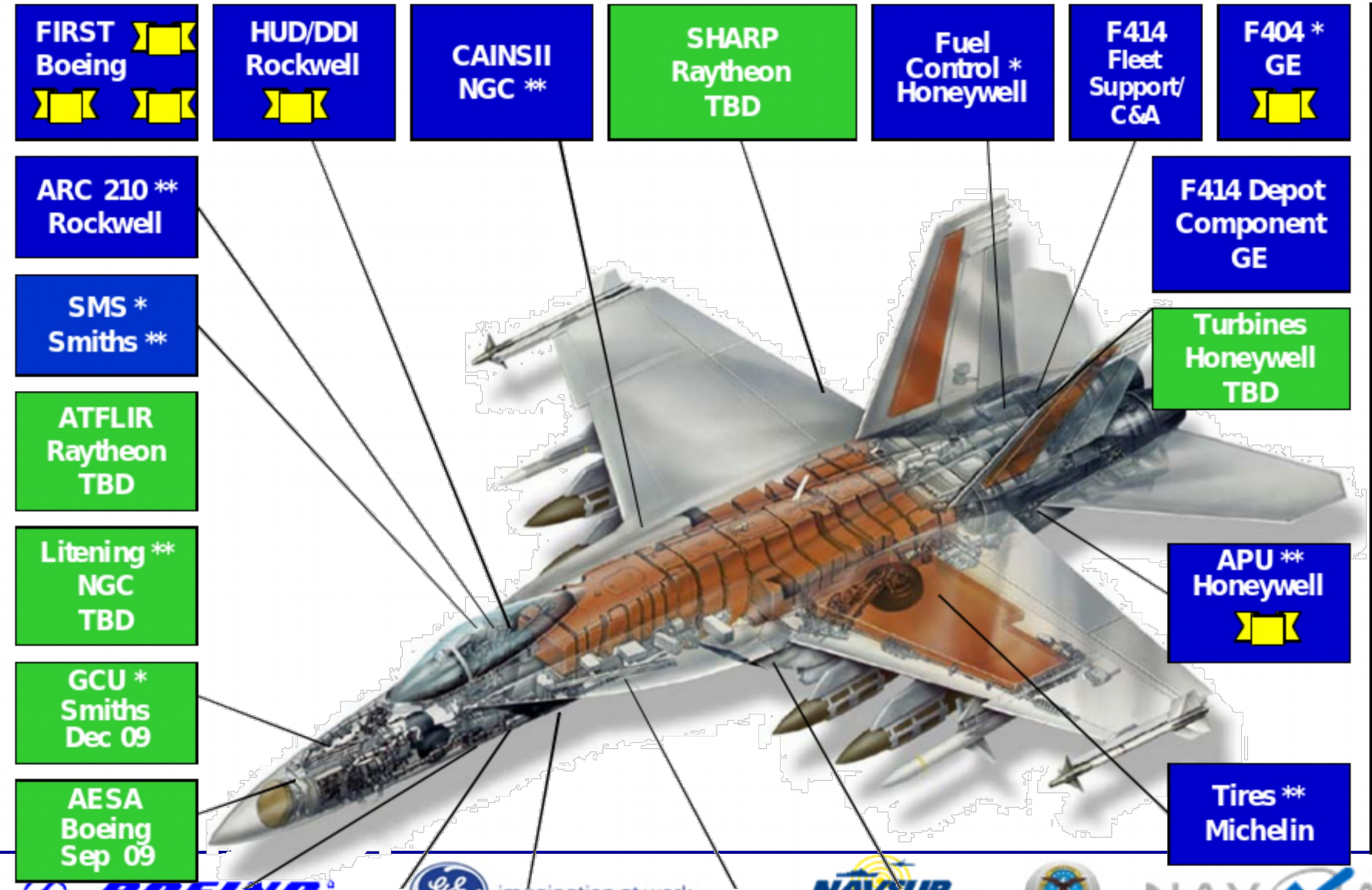
FMS
- Canada
- Australia
- Spain
- Kuwait
- Switzerland
- Finland
- Malaysia

F/A-18 and EA-18G Sustainment Strategy

- Focused F/A-18 Performance Goals on Metrics driven by the Performance Based Agreement (PBA) between the Warfighter and Program Manager (PM).
- Created Virtual Program Office to Focus, Manage, and Lead Sustainment Efforts of Numerous Government Stakeholders.
- Utilized Multiple OEM Centric Performance Based Logistics (PBL) Contracts to Provide the Best Value, Long-term Support Solution for all F/A-18A through F and EA-18Gs.

One Team + One Focus = Improved Readiness for the Warfighter

F/A-18 PBLs & Supply Availability Success



F/A-18 and EA-18G Virtual Program Office

Performance Based Agreement

- MOA between the warfighter (CNAF) and Program Manager.
- Specifies the warfighter's performance expectations via quantifiable metrics.
- Documents the warfighter's requirements to be achieved by award of the Performance Based Logistics Contracts.
- Facilitates CNAF Single Ready For Tasking (RFT) At Lowest Cost Metric
- Ensures Fleet requirements

Warfighter's Performance Based Agreement

Program Manager F/A-18 & EA-18G

F/A-18 DOL Director of Logistics

Product Support Integrator NAVICP: F/A-18 Integrated Weapon System Team

PSI's Roles and Responsibilities

- PM's agent for implementing his sustainment vision/objectives.
- Coordinates organic/private sector support to maximize readiness at the lowest cost.
- Manages all support contracts, MOUs, and MOAs to meet the metrics in the Performance Based Agreement (PBA).
- Key stakeholders actively participate in bi-weekly Sustainment Management Reviews, quarterly Executive St[illegible]ttee meetings, an[illegible] Management Reviews, etc.

PMA-265 209/260

FST NI/JAX/CP

NAWC China Lake

NAWC Lakehurst

DLA DSCR Aviation

FRC Southeast, Mid-Atlantic, Southwest, West

NATEC NI

F/A-18 Integrated Readiness Support Teaming (FIRST)

Program Description: USN/Industry partnership to improve fleet support, increase readiness, and reduce support costs

Affordable Support Through

- Asset management
- Supportability improvements
- Obsolescence management
- Technology insertion
- Consolidated logistics support

Key Enablers

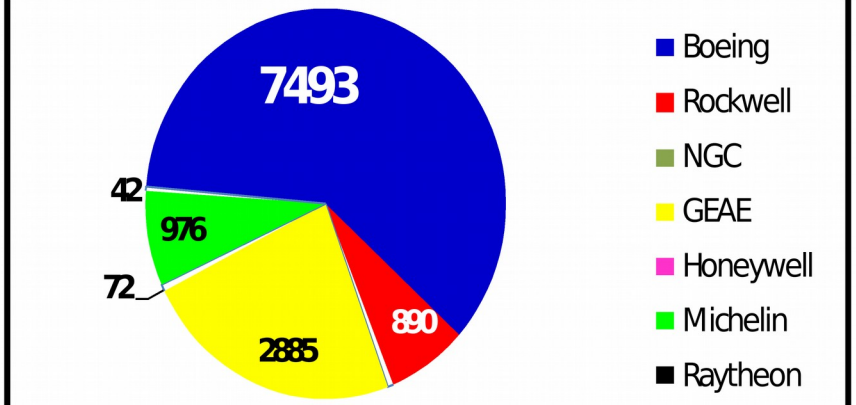
- USN/DLA/Industry Partnership
- Supply Chain Management
- In Service Engineering
- Integrated Information System
- Hornet Support Network
- Performance Based Contracting

FIRST Profile and Supply Chain Statistics

NSN/Material Supported	Quantity
Weapon Repair Assemblies (7R)	1343
Field Level Repairables (1RD)	1333
Support Equipment Items	354
DLA Consumables (9B)	163
DLA Second Source	30,304
Non-DLA Consumables	11,838
Five Year Contract ($615M NWCF & $340M APN)	$955M

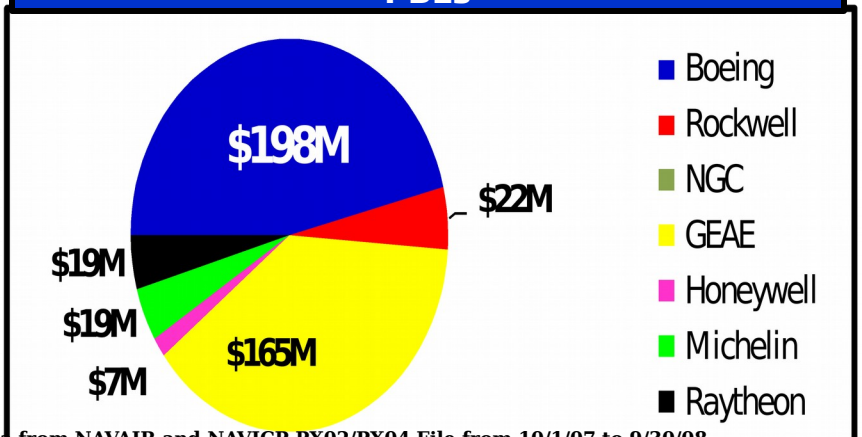
Over 250 Suppliers	
Northrop Grumman	Goodrich
GKN	Sierracin
Raytheon	Textron
BAE	AeroControlex
Smiths	MPC Products
Hamilton Sundstrand	M/A Com
Rockwell	VSE Corporation
EFW	Fleet Readiness Centers

4th Qtr FY08 Demands for F/A-18 E/F PBLs



Data from NAVICP Transaction History File from 10/1/08 to 12/31/08

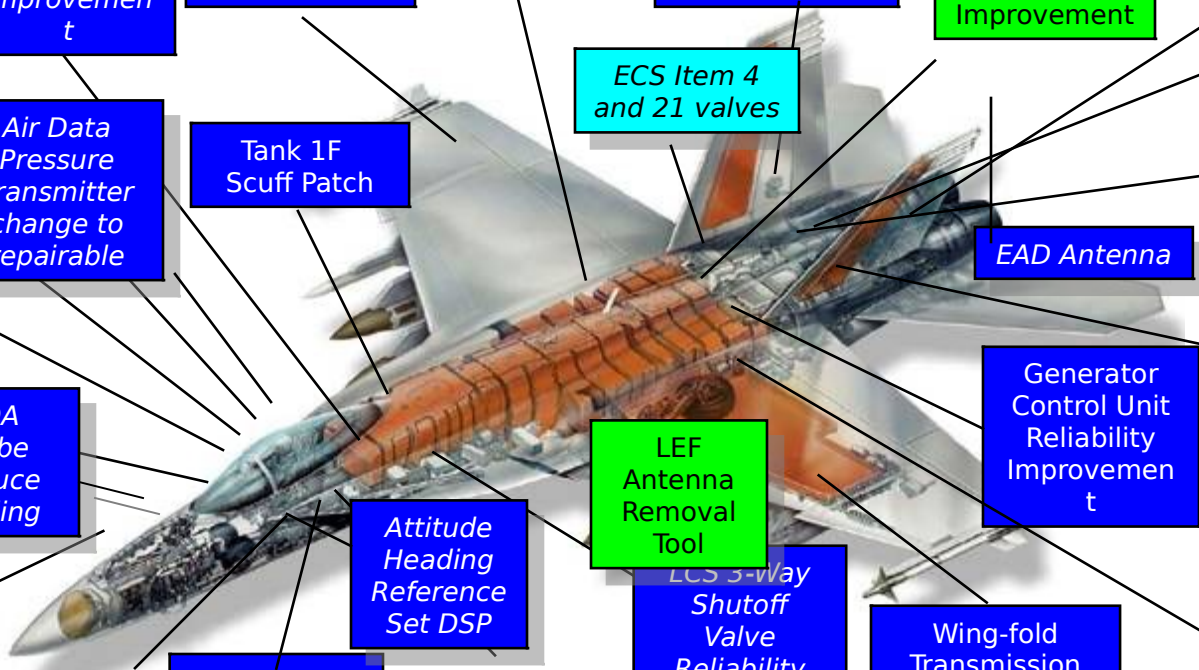
FY08 Annual Obligations for F/A-18 E/F PBLs



Data from NAVAIR and NAVICP PX02/PX04 File from 10/1/07 to 9/30/08

Supportability and Cost Reduction Initiatives

$32.3M non-recurring investment driving $688M * in cost avoidances (TY$M)



- Common Canopy Design
- Canopy Glass Optical Repair Improvement
- Internally Coated Glass Canopy
- Second Source Displays
- Digital Expandable Color Display (DECD) Supportability
- Pitot Static Probe Cover Enhancement
- Pitot Static Probe Heater Redesign
- Controller Software BIT Improvement
- Air Data Pressure Transmitter change to repairable
- AOA Probe Reduce Binding
- Flight Control Computer Maintainability Improvement
- Enhanced Surface Finish Training
- Tank 1F Scuff Patch
- Boarding Ladder Reliability Improvement
- Tank 3 Fittings
- Attitude Heading Reference Set DSP
- Boarding Ladder Actuator and Storage
- Damage Repair Analysis Software
- ECS Item 4 and 21 valves
- LEF Antenna Removal Tool
- ECS 3-Way Shutoff Valve Reliability Improvement
- AMAD Power Takeoff Shaft Seal Improvement
- EAD Antenna
- Generator Control Unit Reliability Improvement
- Wing-fold Transmission Lug Bushings
- Arresting Hook Shank Corrosion Protection
- Hook Point Furnace Fuse
- Pressure Regulating/Shut Off Valve Redesign
- Horizontal Stabilator Servocylinder Wire Harness Improvement
- Trailing Edge Flap Servocylinder Wire Harness Improvement

Incorporated/Complete | Approved / In Work
IW/Partial Incorporation | Pending Concurrence
Shadowed New for LTC | *Planned*

* Joint AIR, ICP & Boeing life cycle cost avoidances validated by AIR-4.2 28 Feb 08.

Updated 2-28-08

FIRST Growth Plan

F/A-18 Subsystems and Components on FIRST

F/A-18E/F APG-79 Radar ILS & SCM

F/A-18A - D Post Production Support

F/A-18F RAAF Initial Support Contract

EA-18G Unique Subsystems ILS & SCM

F/A-18A - D Mod (Inner Wing) ISE & SCM

F/A-18E/F Block Upgrades (Lot 25 to 30)

F/A-18A - D NATEC CET Support

F/A-18E/F APG-79 PBL

F/A-18F RAAF PBL

F/A-18A - D Boeing Sourced Systems

F/A-18 FMS, Mods, & Retrofit

F/A-18 DLA Consumables

FIRST is a 5 yr FFP w/ a 5 yr Option
Contract currently Includes:

- 1343 F/A-18E/F WRAs
- 1333 Field Level Repairables
- 354 Support Equip. Items
- 163 DLA Consumables
- 30,304 DLA Second Sourced
- 11,838 Non-DLA Consumables

EA-18G Subsystems

- Gun Bay
- CCS
- EAU
- INCANS
- ALQ-218
- AIU

Excludes:

- Explosives
- A-D LOX
- NAVFLIR
- Other PBLs
  - Engines
  - ATFLIR
  - Tires
  - Displays
  - Etc.

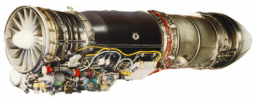
FIRST Today

FY 08 Adds

FY 09 Proposed Adds

FY 10 & Beyond Adds

F/A-18 PBL Supported Systems

- FIRST
  - ADM Stan Arthur 2006 Winner
  - SECDEF PBL 2007 Winner
  - SECDEF Logistics 2007 Winner
  - $955M FFP contract with 5 year base & single 5 year option
- F404 Engine 
  - SECDEF 2005 Winner
  - $641M FFP contract with 4.5 year base and five year option
- F414 Engine
  - $533M 4 year Depot Component PBL
- ALR-67(V)3 ECM RWR
  - SECDEF 2008 Winner
  - $150M FFP contract with 6 year base with a 5 year option
- Auxiliary Power Unit
  - SECDEF 2005 Winner
  - $202M FFP contract with 5 year base and five 1 year options

F/A-18 PBL Supported Systems

- Cockpit Displays
  - $360M contract w/ 5 year base & 2 5 year options

SECDEF 2006 Winner

- Stores Management System
  - $36.5M contract w/ 5 year base, one 3 year & one 2 year option
- ARC-210 Radio
  - $53.2M, 10 year contract with Rockwell-Collins
- ALQ-126B EW Jammer
  - $29M FFP contract w/1 year base period & four 1 year options
- Tires
  - $261M FFP contract for 15 years

PBL Challenges

- Metric Development
  - Traceable to war-fighter goals (PBA)
  - Generate the right outcomes
  - Be careful of Trade-Offs (Availability vs. Reliability)
- Funding challenges need to be resolved early.
- Focus on creating a long term business arrangement that will stand the test of time….be flexible in creating mutually beneficial outcomes.
- Lots of rice bowls and traditional authorities that have to be gotten past…fight off the bureaucracy that wants to dictate “how”.
- Anticipate late comers…second guessers.
- Coordination is the key…organizational chains are very long.

Summary: Keys to PBL Success

- Program Management
  - Identify Government/Industry Team at the start…keep roster constant.
  - Understand the requirement and tackle the big strategy issues upfront.
  - Build a master schedule…discuss weekly & aggressively manage all over due tasks.
  - Spend time getting metrics right…will significantly impact performance & pricing.
  - Make mutual decisions that benefit the Warfighter and Taxpayer.

- Acquisition Strategy
  - Involve contract teams early to work issues concurrent with technical teams.
  - Maintain comprehensive record of decisions and presentations.
  - Address policy differences, ground rules, and assumptions early.
  - Resolve all issues…do not leave them open too long.
  - Be flexible…avoid blinders when discussing new ways of doing things

Communication, Communication, Communication!!!